Amendments to the Specification:

Please replace paragraph [0044], beginning at page 10, line 19, with the following rewritten paragraph:

[0044] Pump pulse 16 launches THz pulse 19 by exciting dipole antenna 40. THz pulse 19 is collimated by parabolic mirror 20a and reflected by sample 21. To isolate the interference of the pump-pulse-induced photo-current, mechanical chopper 22 modulates the THz pulse. Probe pulse 17 samples the reflected THz signal using dipole antenna 40. The simultaneous arrival of the reflected THz signal and probe pulse 17 at dipole antenna 40 induces a current between the electrodes (not shown) of the antenna that is proportional to the THz electric field. Lock-in amplifier 23 detects this current. Electronics downstream of the lock-in amplifier 23 (for example, ~~photodetector~~ data processor 80 as shown in Fig. 1) may be the same for a photoconductive antenna transceiver system as for an electro-optic crystal transceiver system.

Please replace paragraph [0046], beginning at page 11, line 7, with the following rewritten paragraph:

[0046] In one exemplary embodiment, a Ti:sapphire laser ~~(Coherent Mira)~~ with 800 nm center wavelength, 120 fs laser pulses, and a 86 MHz repetition rate was used as the optical source, and the average power for the pump and probe pulses was 20 mW. Antenna 40 was low-temperature-grown GaAs, 50 μm long, biased with a 9V battery, and attached to a silicon lens 42. Chopper 22 modulated the THz pulse at 453 Hz, and sample 21 was a metallic mirror. The measured THz waveform had a signal-to-noise ratio (SNR) of about 200.